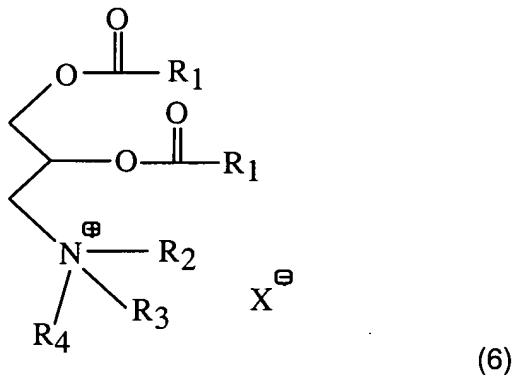


**AMENDMENTS TO THE CLAIMS:**

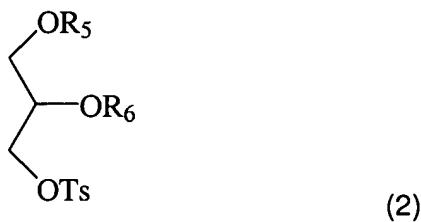
This listing of claims will replace all prior versions, and listings, of claims in the application:

1-21 (cancelled).

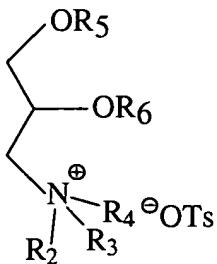
22 (new). A process for the synthesis of lipid cations having general formula (6):



in which: R<sub>1</sub> represents a lipophilic chain, preferably selected from C<sub>1</sub>-C<sub>24</sub> alkyl, C<sub>1</sub>-C<sub>24</sub> alkenyl, C<sub>1</sub>-C<sub>24</sub> alkynyl, C<sub>1</sub>-C<sub>24</sub> alkanoyl, and C<sub>1</sub>-C<sub>24</sub> alkenoyl or alkynoyl radicals, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, which are identical or different from one another, represent C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>1</sub>-C<sub>10</sub> alkenyl, or C<sub>1</sub>-C<sub>10</sub> alkynyl radicals, optionally containing hydroxyl, ether, halogen and acyloxy functions, and X<sup>-</sup> is an oxy-anion or a halide, characterized in that a compound of formula (2),



in which R<sub>5</sub> and R<sub>6</sub>, which are identical or different from one another, represent a C<sub>1</sub>-C<sub>5</sub> acyl, a benzyl group or a diol-protective group, is reacted in an alcoholic solvent with from 1 to 6 equivalents of NR<sub>2</sub>R<sub>3</sub>R<sub>4</sub>, in which R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> have the meanings given above, to give the compound of formula (3)



(3)

in which R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub> and R<sub>6</sub> have the meanings given above.

23 (new). A process according to Claim 22, characterized in that the alcoholic solvent is selected from ethanol, isopropanol and/or methanol.

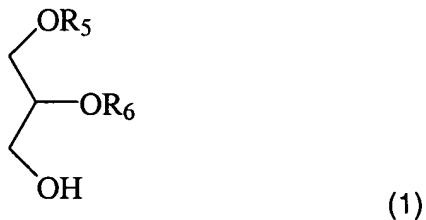
24 (new). A process according to Claim 22, characterized in that the alcoholic solvent is used in a quantity of from 0.5 - 1.5 litres per equivalent of NR<sub>2</sub>R<sub>3</sub>R<sub>4</sub>.

25 (new). A process according to Claim 22, characterized in that all three of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are methyl radicals.

26 (new). A process according to Claim 22, characterized in that it is carried out at a temperature of from 50 - 100°C.

27 (new). A process according to Claim 22, characterized in that the diol-protective group is a ketal, preferably a cyclic ketal, even more preferably a solketal.

28 (new). A process according to Claim 22, characterized in that the compound of formula (2) is obtained by reacting from 0.9 to 1.2 equivalents of compound of formula (1)



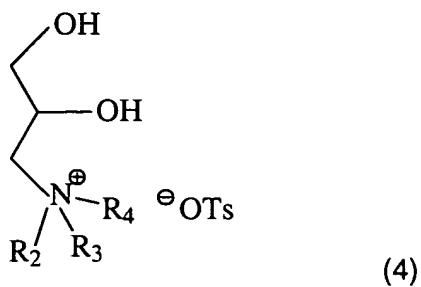
with 1 equivalent of tosyl halide, preferably chloride, in an apolar, organic solvent.

29 (new). A process according to Claim 28, characterized in that the apolar, organic solvent is a hydrocarbon, preferably toluene.

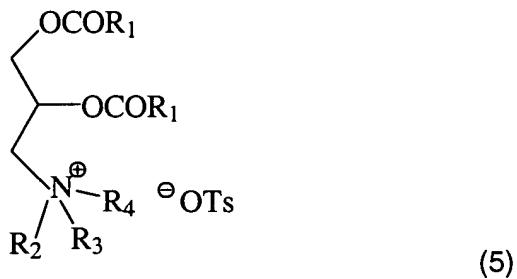
30 (new). A process according to Claim 28, characterized in that the reaction is carried out at a temperature of 15-35°C, preferably 20-25°C.

31 (new). A process according to Claim 28, characterized in that the reaction is carried out with the use of from 0.8 to 1.2 litres of solvent per equivalent of compound (1).

32 (new). A process according to Claim 22, comprising the removal of the R<sub>5</sub> and R<sub>6</sub> groups to give compound (4)



in which  $R_2$ ,  $R_3$  and  $R_4$  have the meanings given above, the subsequent reaction of compound (4) with 2-4 equivalents of  $R_1COCl$  in an aprotic, apolar, organic solvent, preferably a chlorinated solvent, in which  $R_1$  has the meaning given above, to give compound (5)



in which  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  have the meanings given above, and the subsequent ion exchange of the tosylate anion of compound (5) with a halide anion to give the lipid cation of formula (6).

33 (new). A process according to Claim 32, characterized in that groups  $R_5$  and  $R_6$  are removed by acid hydrolysis.

34 (new). A process according to Claim 32, characterized in that the aprotic, apolar, organic solvent is used in a quantity of 3.5-5.5 litres per equivalent of compound (4).

35 (new). A process according to Claim 32, characterized in that the aprotic, apolar, organic solvent is selected from methylene chloride, chloroform, and tetrachloroethylene.

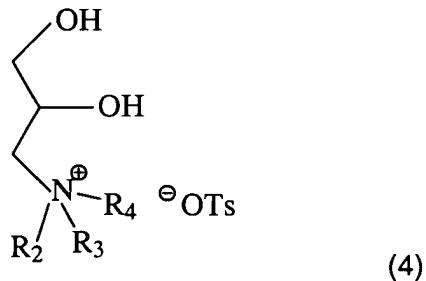
36 (new). A process according to claim 32, characterized in that the ion exchange is performed by chromatography on ion-exchange resin.

37 (new). A process according to Claim 36, characterized in that the ion-exchange resin is a strong basic resin.

38 (new). A process according to Claim 22, characterized in that the lipid cation of formula (6) is purified by crystallization, preferably from acetonitrile.

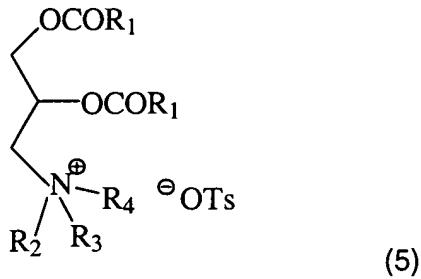
39 (new). A process according to Claim 22, characterized in that the lipid cation of formula (6) is N-[1-(2,3-dioleyloxy-propyl]-N,N,N-trimethylammonium chloride (DOTAP-C1).

40 (new). A compound of formula (4)



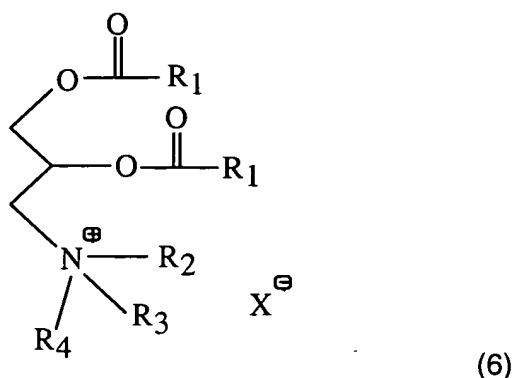
in which R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which are identical or different from one another, represent C<sub>1</sub>-C<sub>10</sub> alkyl radicals, C<sub>1</sub>-C<sub>10</sub> alkenyl radicals, or C<sub>1</sub>-C<sub>10</sub> alkynyl radicals, optionally containing hydroxyl, ether, halogen, and acyloxy functions.

41 (new). A compound of formula (5)



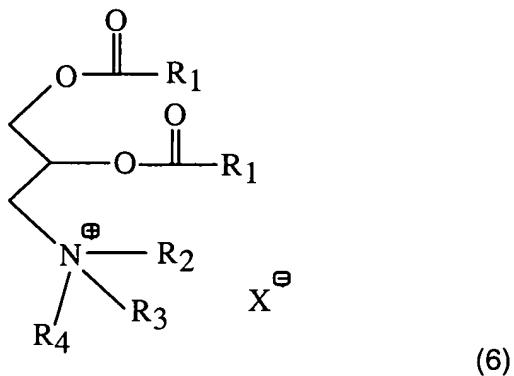
in which: R<sub>1</sub> represents a lipophilic chain, preferably selected from C<sub>1</sub>-C<sub>24</sub> alkyl, C<sub>1</sub>-C<sub>24</sub> alkenyl, C<sub>1</sub>-C<sub>24</sub> alkynyl, C<sub>1</sub>-C<sub>24</sub> alkanoyl, and C<sub>1</sub>-C<sub>24</sub> alkenoyl or alkynoyl radicals, and R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, which are identical or different from one another, represent C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>1</sub>-C<sub>10</sub> alkenyl, or C<sub>1</sub>-C<sub>10</sub> alkynyl radicals, optionally containing hydroxy, ether, halogen and acyloxy functions.

42 (new). Use of compounds of formula (4) as intermediates in the synthesis of cationic lipids having general formula (6):



in which R<sub>1</sub> represents a lipophilic chain, preferably selected from C<sub>1</sub>-C<sub>24</sub> alkyl, C<sub>1</sub>-C<sub>24</sub> alkenyl, C<sub>1</sub>-C<sub>24</sub> alkynyl, C<sub>1</sub>-C<sub>24</sub> alkanoyl, and C<sub>1</sub>-C<sub>24</sub> alkenoyl or alkynoyl radicals, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, which are identical or different from one another, represent C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>1</sub>-C<sub>10</sub> alkenyl, or C<sub>1</sub>-C<sub>10</sub> alkynyl radicals, optionally containing hydroxyl, ether, halogen and acyloxy functions, and X<sup>⊖</sup> is an oxy-anion or a halide.

43 (new). Use of compounds of formula (5) as intermediates in the synthesis of cationic lipids having general formula (6):



in which R<sub>1</sub> represents a lipophilic chain, preferably selected from C<sub>1</sub>-C<sub>24</sub> alkyl, C<sub>1</sub>-C<sub>24</sub> alkenyl, C<sub>1</sub>-C<sub>24</sub> alkynyl, C<sub>1</sub>-C<sub>24</sub> alkanoyl, and C<sub>1</sub>-C<sub>24</sub> alkenoyl or alkynoyl radicals, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, which are identical or different from one another, represent C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>1</sub>-C<sub>10</sub> alkenyl, or C<sub>1</sub>-C<sub>10</sub> alkynyl radicals, optionally containing hydroxyl, ether, halogen and acyloxy functions, and X<sup>-</sup> is an oxy-anion or a halide.